

REMARKS

Reconsideration and allowance of the present application are respectfully requested. Claim 1 has been canceled. Claims 2-4, 6, and 7 have been amended. Claims 8-10 are new. Claims 2-10 are now pending in the application.

On June 3, 1998, Applicant's representative filed an Information Disclosure Statement including a number of documents for the Examiner's consideration and a form PTO-1449 listing those documents. However, the Office Action has not acknowledged this filing. Accordingly, Applicant respectfully requests that an initialed copy of this form PTO-1449 be returned with the next official communication.

The Examiner's attention is drawn to amendments made to pages 1-4 of the specification during examination at the international stage. Copies of these amendments are provided for the Examiner, in case they are not in the examination case file. Accordingly, the changes to page 1 of the specification in the current Amendment should be made to the amended page 1.

The Office Action objects to the specification of the present application. Applicant respectfully submits that the foregoing amendments obviate the objections. Accordingly, reconsideration and withdrawal of these objections are respectfully requested.

Claims 1-7 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully submits that the foregoing amendments obviate the rejections. Accordingly, reconsideration and withdrawal of these rejections are respectfully requested.

Claim 1 was rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,841,521 (Amada). Claim 2 was rejected under 35 U.S.C. 103(a) as being unpatentable over Amada. Claim 3 was rejected under 35 U.S.C. 103(a) as being unpatentable over Amada in view of U.S. Patent No. 4,144,522 (Kageyama). Claims 4-5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Amada in view of U.S. Patent No. 3,798,608 (Huebner). Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Amada in view of U.S. Patent No. 5,625,651 (Cioffi). Claim 7 was rejected under 35 U.S.C. 103(a) as being unpatentable over Amada in view of U.S. Patent No. 5,151,896 (Bowman). These rejections are respectfully traversed.

A brief overview of exemplary aspects of the subject matter described in the present specification is presented to assist the Examiner's review of the application. The present invention is directed to the bidirectional transmission of data via a two-wire line. In an exemplary embodiment, transmitted data and received data are modulated and demodulated by discrete multitone (DMT) modulation means, and separated by a time division multiplex (TDM) operation. Conventional systems which modulate data using DMT use either Frequency Multiplex (FDM) operations or echo canceling (EC) methods to separate transmitted data from received data. However, these operations often result in disparate transmission qualities between the transmitting and receiving channels, require high resolution A/D convertors, or require high computing power for handling transmitting and receiving data at the same time. With a TDM operation, a time frame of data transmission is subdivided into a number of time slots, where one direction of data transmission is assigned a great majority of the time slots and the other direction assigned the reminder. In

such a system, processing power is directed to either the transmitting or receiving of data at any given time and the same line attenuation is used in both directions of transmission.

TDM features are encompassed by claim 8 of the present invention, which recites, among other features, modulating and demodulating the digital data using discrete multitone modulation and separating digital data to be transmitted and the digital data to be received by time division multiplex operation.

Amada does not teach or suggest Applicant's claimed invention. Amada discloses a system for bidirectionally transmitting data between terminal stations, in which each transmission period is divided into a plurality of first time sections for relatively low speed data transmission and at least one second time section for relatively high speed data transmission (abstract, lines 1-6). Amada does not disclose the feature of modulating and demodulating the digital data using DMT modulation or any other modulation.

In contrast, the present invention uses time division multiplex operations to separate data which is modulated and demodulated by DMT modulation. Amada does not disclose any method of data modulation. Applicant is aware of the fact that time division multiplex operations per se are used in the field of data transmission; however, such a method is not currently used to separate data modulated and demodulated by DMT modulation.

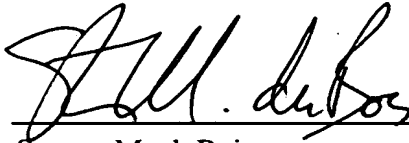
While the amendments to the claims of the present invention render the rejection of claim 1 moot, reconsideration and withdrawal of the rejection under 35 U.S.C. 102(b) as it might be applied to claim 8 are respectfully requested for at least the above reasons.

Claims 2-7 depend from claim 8 and are therefore patentable for at least the same reasons.

In light of the foregoing, the Applicant has addressed all issues raised in the Office Action and now respectfully submits that the Application is in condition for allowance. Favorable consideration on the merits and prompt allowance are respectfully requested. In the event any questions arise regarding this communication or the application in general, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

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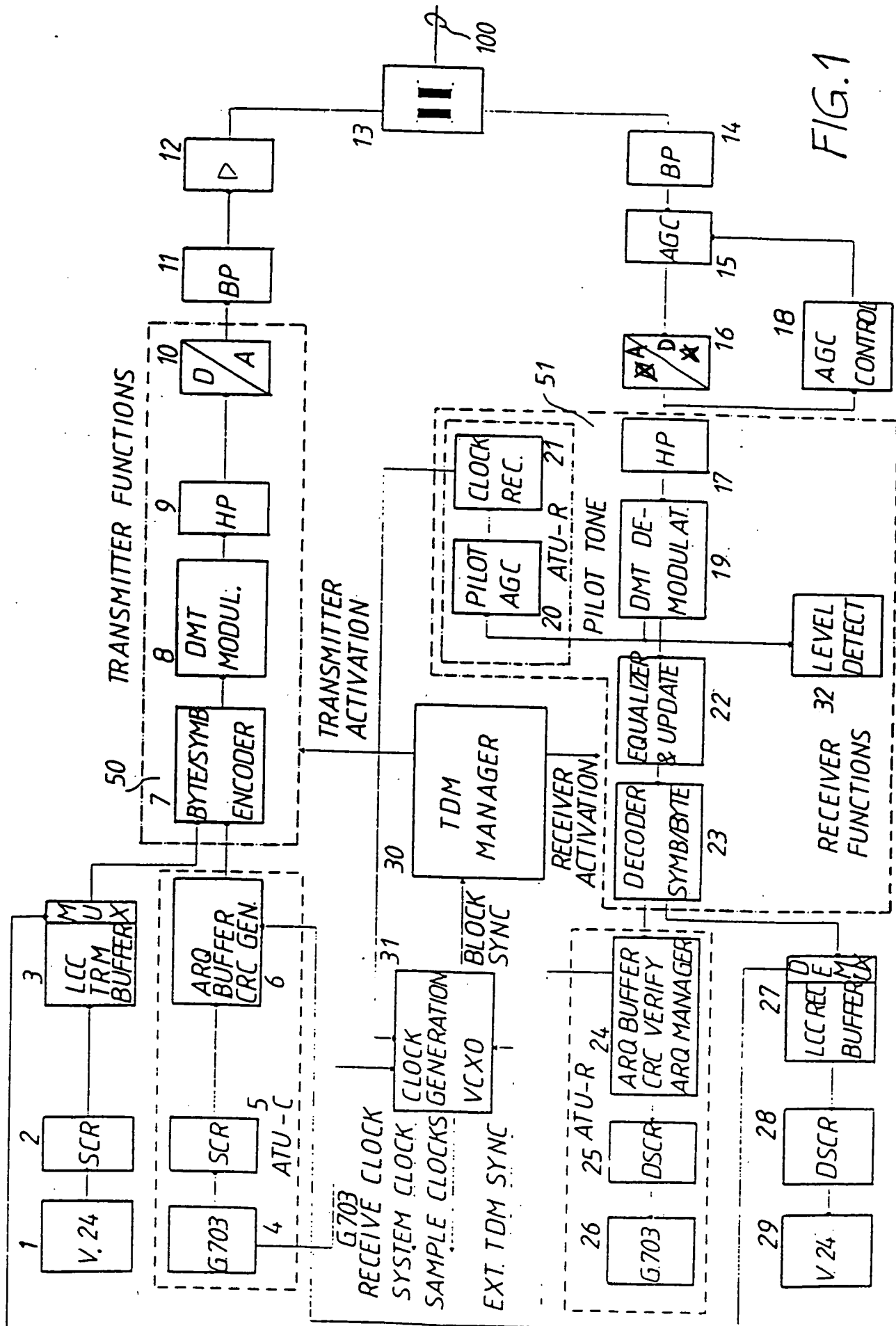


FIG. 1

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